Qualifying Exam Guideline

1. Purpose
Following the successful completion of all course requirements, rotations, and identification of the Dissertation Advisor, each student must pass a Qualifying Exam to remain in the program. After successful completion of the Qualifying Exam, the student becomes a Ph.D. candidate. The exam is typically held in June of the second year. Postponing the exam or taking the exam earlier (June of the first year) requires permission by the Program Directors. The exam will be administered by a Qualifying Exam Committee of three Graduate Faculty members appointed by the Program Directors. The Dissertation Advisor cannot serve on the committee.

The overall purpose of the Qualifying Exam is to assess the student’s preparation and ability to embark on the highly challenging task of successfully completing an original, scholarly scientific investigation. With proper course preparation and completion of rotation projects, it is expected that the majority of students should pass the Qualifying Exam.

The Qualifying Exam consists of a written research proposal and an oral exam, both of which should allow the Qualifying Exam Committee to determine if the student has acquired the following qualifications:

- A proper understanding of modern concepts and principles in the broadly defined areas of study and research
- A substantial understanding of the biological, mathematical, and physical principles applicable to the submitted proposal
- The ability to define an original and testable hypothesis and the ability to address it with a reasonable experimental or theoretical approach
- The ability to critically evaluate and review published, peer-reviewed literature pertinent to the question being posed
- The ability to interpret outcomes of the proposed experiments and an understanding of the limitations of the proposed approach
- The ability to effectively communicate scientific content both orally and in writing

2. Written Proposal
While the student may write the proposal as an early version of the tentative dissertation project, there is no specific restriction on the subject of the Qualifying Exam proposal other than it must be the original work of the student. Preliminary data are not required. Following the NIH F31 fellowship application guidelines, the proposal should be limited to 7 pages that include one page Specific Aims Page; and six pages of Research Strategies that should include Background and Significance, Preliminary Data (if available) and Research Plan. The Background and Significance section should explain the importance of the problem or critical barrier to progress that the proposes project addresses and explain how the proposed project will improve scientific knowledge in the field. The Research Plan section should describe the overall strategy, methodology and analyses to be used to accomplish the specific aims. The section should also describe expected outcome and potential pitfalls/alternative strategy for each aim proposed. References are required and are not included in the seven-page limit.

Students must write the proposal themselves, but they are free to consult their mentors, other students and/or faculty members concerning methodologies, format and references. The students are also allowed to have mentors, other students and/or faculty members to read and critique the proposal.
Submit Proposal Abstract: Student should submit an abstract for the research proposal to the Program Director by **May 1st**. Abstract should briefly describes project goals and significance, specific aims and research design methods. The abstract should be limited to 30-lines of text. On the basis of the abstract, the Program Director assemble the Qualifying Exam Committee and the students will be notified of their committee composition in mid-May.

Submit Research Proposal: The full proposal must be submitted to the Qualifying Exam Committee by **June 10th**. The committee will evaluate the proposal based on the criteria (but are not limited to) below.

- Is it hypothesis-based, scientifically sound and logical?
- Is there sufficient background/review of field?
- Are the aims sufficiently independent?
- Is there an explanation of expected outcomes and consideration of alternative approaches?
- Is it well-organized and clearly written with proper grammar/spelling?

3. Written Proposal Format
   a. Page Limits and Size:
      - 1 page for the Specific Aims section
      - 6 pages for the Research Strategy section
      - All pages of the proposal must be 8.5x11 inches
   b. Typeface: The recommended type faces are Arial, Georgia, Helvetica and Palatino Lino type.
   c. Font Size: The required typeface must be 11 points or larger. Smaller font can be used in figures, figure legends, graphs, diagrams, charts, tables and footnotes to tables. In those places, the only restrictions are that one of the allowed typefaces be used and that the print be legible. For example, Arial 9, or even 8, points is acceptable
   d. Type Density and Line Spacing: There must be 15 or fewer characters and spaces per linear inch, and line spacing must be 6 lines or fewer per vertical inch
   e. Margins: 0.7- to 1-inch for top, bottom, left and right margin.

4. Oral Exam
   Oral Exam portion of the Qualifying Exam should take place on the 3rd or the 4th week in June. It is the student’s responsibility to contact the committee members to decided on the date/time/location of the oral exam. For the oral exam, the student should prepare a 20-minute presentation that serves as a defense of the proposed project. The examiners will interrupt and invite the student to discuss details of the proposal. In addition, the student will be examined on foundational knowledge in Molecular Biology, Biochemistry and Cell Biology. The topics may not directly related to the contents of the proposal, but covered during the course work the student has completed. How long the exam will take, and what portion of the time is spent on which topics is at the discretion of the committee.

5. Pass/Fail
   If a student does not pass the written and/or oral component of the qualifying examination, the chance for a second attempt may be offered if the Qualifying Exam Committee identifies a clear path to remedying the prior shortcomings. This second attempt will typically take place within six weeks after the initial exam date. Ultimate failure to pass either the written or the oral part of the Qualifying Exam will result in dismissal from the program. Students can appeal a dismissal from the program using the established procedures of the Rutgers Graduate School-Newark (GSN).
The committee members will provide a detailed assessment of the student’s performance, entered by the committee chair into the “Qualifying Exam Report” form that will be shared with the student and Dissertation Advisor for feedback purposes.

After successful completion, students must submit the “Application for Admission to Candidacy for the Doctoral Degree” to the Rutgers Graduate School-Newark (available on the GSN website). The form requires signatures from all Qualifying Exam Committee members, and the Program Director. Students should collect the signature of the Program Director last, so a copy with all signatures present can be kept for the program records.